

CLAIMS

What is claimed is:

1. An optical transistor fabricated on a substrate comprising:

a light intensity modulator region; and

a photo conductor region incident to said light intensity modulator region for controlling said light intensity modulator region.
2. The optical transistor of claim 1, wherein said light intensity modulator region is separated by a first terminal disposed on one surface of said substrate and a second terminal disposed on other surface of said substrate.
3. The optical transistor of claim 1 wherein said light intensity modulator region is bi-stable.
4. The optical transistor of claim 1 wherein said light intensity modulator region is liquid crystal.
5. The optical transistor of claim 1 wherein said light intensity modulator region is optical crystal.

6. The optical transistor of claim 1 wherein said light intensity modulator region exhibits high gain.
7. The optical transistor of claim 1 wherein said light intensity modulator region exhibits negative gain.
8. The optical transistor of claim 1 wherein said light intensity modulator region is comprise of multiple quantum wells.
9. The optical transistor of claim 1 wherein said light intensity modulator region is configured for specified wavelength bands.
10. The optical transistor of claim 1, further comprising:
a control light incident on said photo conductor region.
11. The optical transistor of claim 2, further comprising:
a control light incident on said photo conductor region and
an input light incident on said first terminal.
12. The optical transistor of claim 11, further comprising:
an output light emanating from said second terminal.
13. The optical transistor of claim 1 further comprising:

a second photo conductor region incident to said photo conductor region.

14. The optical transistor of claim 13 wherein said photo conductor regions comprise input logic operators.

15. The optical transistor of claim 14 wherein said second terminal comprise output logic operators.

16. An array of a plurality of optical transistors of claim 1.

17. An array of a plurality of optical transistors of claim 1 comprising:

a first array of said optical transistors; and

a second array of said optical transistors with a plurality of first terminals disposed incident to a plurality of second terminals of drain regions of said first array.